

Sequence Listing

<110> Genentech, Inc., Hsei, Vanessa
Koumenis, Iphigenia
Leong, Steven R.
Shahrokh, Zahra
Zapata, Gerardo A.

<120> ANTIBODY FRAGMENT-POLYMER CONJUGATES AND USES OF SAME

<130> P1085R6

<150> US 60/116,787
<151> 1999-01-21

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<213> Mus musculus

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35 40 45
Ala Leu Ile Tyr Ser Ser Ser Tyr Arg Tyr Ser Gly Val Pro Asp
50 55 60
Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
65 70 75
Ser His Val Gln Ser Glu Asp Leu Ala Asp Tyr Phe Cys Gln Gln
80 85 90

Tyr Asn Ile Tyr Pro Leu Thr Phe Gly Pro Gly Thr Lys Leu Glu
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110 115 120

Pro Phe Glu
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caagagcctg gagttgggtc caaccattaa taataatggt gatagcacct 200
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catgttttac tgtgcaagag ccctcattag ttcggctact tggtttggtt 350
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35 40 45
Glu Leu Val Ala Thr Ile Asn Asn Asn Gly Asp Ser Thr Tyr Tyr
50 55 60
Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala
65 70 75
Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu Asp
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Thr Ala Met Phe Tyr Cys Ala Arg Ala Leu Ile Ser Ser Ala Thr
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<220>

<221> Artificial Sequence

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<220>

<221> Artificial Sequence

<222> 1-31

<223> recombinant immunoglobulin

<400> 21

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aatgtgggta ctaatgtagc ctggatatcaa cagaaaccag ggcaatctcc 200
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<222> 1-237
<223> recombinant immunoglobulin

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35 40 45
Cys Lys Ala Ser Gln Asn Val Gly Thr Asn Val Ala Trp Tyr Gln
50 55 60
Gln Lys Pro Gly Gln Ser Pro Lys Ala Leu Ile Tyr Ser Ser Ser
65 70 75
Tyr Arg Tyr Ser Gly Val Pro Asp Arg Phe Thr Gly Ser Gly Ser
80 85 90

Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	His	Val	Gln	Ser	Glu	Asp
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Leu	Ala	Asp	Tyr	Phe	Cys	Gln	Gln	Tyr	Asn	Ile	Tyr	Pro	Leu	Thr
				110					115					120
Phe	Gly	Pro	Gly	Thr	Lys	Leu	Glu	Leu	Arg	Arg	Ala	Val	Ala	Ala
				125					130					135
Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser
				140					145					150
Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe	Tyr	Pro	Arg
				155					160					165
Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly
				170					175					180
Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr
				185					190					195
Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu
				200					205					210
Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser
				215					220					225
Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys			
				230					235		237			

<210> 26

<211> 756

<212> DNA

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<220>

<221> Artificial Sequence

<222> 1-756

<223> recombinant immunoglobulin

<400> 26

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cctggagttg gtcgcaacca ttaataataa tggatagac acctattatc 250
cagacagtgt gaagggccga ttcaccatct cccgagacaa tgccaagaac 300
accctgtacc tgcaaatgag cagtctgaag tctgaggaca cagccatggt 350
ttactgtgca agagccctca ttagttcggc tacttggttt gggtactggg 400
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 cagcttgggc acccagacct acatctgcaa cgtgaatcac aagcccagca 700
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<212> PRT

<213> Artificial Sequence

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<221> Artificial Sequence

<222> 1-251

<223> recombinant immunglobulin

<400> 27

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Gly	Gly	Gly	Leu	Val	Pro	Pro	Gly	Gly	Ser	Leu	Lys	Leu	Ser	Cys	35	40	45	
Ala	Ala	Ser	Gly	Phe	Ile	Phe	Ser	Ser	Tyr	Gly	Met	Ser	Trp	Val	50	55	60	
Arg	Gln	Thr	Pro	Gly	Lys	Ser	Leu	Glu	Leu	Val	Ala	Thr	Ile	Asn	65	70	75	
Asn	Asn	Gly	Asp	Ser	Thr	Tyr	Tyr	Pro	Asp	Ser	Val	Lys	Gly	Arg	80	85	90	
Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ala	Lys	Asn	Thr	Leu	Tyr	Leu	Gln	95	100	105	
Met	Ser	Ser	Leu	Lys	Ser	Glu	Asp	Thr	Ala	Met	Phe	Tyr	Cys	Ala	110	115	120	
Arg	Ala	Leu	Ile	Ser	Ser	Ala	Thr	Trp	Phe	Gly	Tyr	Trp	Gly	Gln	125	130	135	
Gly	Thr	Leu	Val	Thr	Val	Ser	Ala	Ala	Ser	Thr	Lys	Gly	Pro	Ser	140	145	150	
Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly	Gly	Thr	155	160	165	
Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	170	175	180	
Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	Thr	185	190	195	

Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
200 205 210

Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
215 220 225

Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys
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Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr
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<211> 37

<212> DNA

<213> Mus musculus

<400> 28

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<210> 29

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<213> Mus musculus

<400> 29

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<211> 37

<212> DNA

<213> Mus musculus

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ccaatgcata cgctgacatc gtgatgacac agacacc 37

<210> 31

<211> 35

<212> DNA

<213> Mus musculus

<400> 31

agatgtcaat tgctcactgg atggtgggaa gatgg 35

<210> 32

<211> 32

<212> DNA

<213> Mus musculus

<400> 32

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<210> 33

<211> 32

<212> DNA

<213> Mus musculus

<400> 33

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<210> 34
<211> 391
<212> DNA
<213> Mus musculus

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ctcctgatct acaaagtttc caaccgattt tctgggggtcc cagacagggtt 200
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<213> Mus musculus

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35 40 45
Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe
50 55 60
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
65 70 75
Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Leu
80 85 90
Tyr Phe Cys Ser Gln Ser Thr His Val Pro Leu Thr Phe Gly Ala
95 100 105
Gly Thr Lys Leu Glu Leu Lys Arg Ala Asp Ala Ala Pro Thr Val
110 115 120
Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Lys
125 130 131

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<212> DNA
<213> Mus musculus

<400> 36

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 <212> PRT
 <213> Mus musculus

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 20 25 30
 Ser His Tyr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 35 40 45
 Glu Trp Ile Gly Tyr Ile Asp Pro Ser Asn Gly Glu Thr Thr Tyr
 50 55 60
 Asn Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Val Asp Thr Ser
 65 70 75
 Ser Ser Thr Ala Asn Val His Leu Ser Ser Leu Thr Ser Asp Asp
 80 85 90
 Ser Ala Val Tyr Phe Cys Ala Arg Gly Asp Tyr Arg Tyr Asn Gly
 95 100 105
 Asp Trp Phe Phe Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val
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 Ser Ser Ala Lys Thr Asp Ser Pro Ile Gly Leu Ser Gly Pro Ile
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 <221> Artifical Sequence
 <222> 1-22
 <223> recombinant immunoglobulin

<400> 38
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<210> 39
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<221> Artificial Sequence
<222> 1-38
<223> recombinant immunoglobulin

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<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<221> Artificial Sequence
<222> 1-31
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<222> 1-729
<223> recombinant immunoglobulin

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<212> PRT

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-242

<223> recombinant immunoglobulin

<400> 42

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Pro	Leu	Ser	Leu	Pro	Val	Ser	Leu	Gly	Asp	Gln	Ala	Ser	Ile	Ser	35	40	45	
Cys	Arg	Ser	Ser	Gln	Ser	Leu	Val	His	Gly	Ile	Gly	Asn	Thr	Tyr	50	55	60	
Leu	His	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Lys	Leu	Leu	65	70	75	
Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe	80	85	90	
Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	95	100	105	
Val	Glu	Ala	Glu	Asp	Leu	Gly	Leu	Tyr	Phe	Cys	Ser	Gln	Ser	Thr	110	115	120	
His	Val	Pro	Leu	Thr	Phe	Gly	Ala	Gly	Thr	Lys	Leu	Glu	Leu	Lys	125	130	135	
Arg	Ala	Val	Ala	Ala	Pro	Thr	Val	Phe	Ile	Phe	Pro	Pro	Ser	Ser	140	145	150	
Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	155	160	165	
Asn	Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	170	175	180	
Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	185	190	195	
Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	200	205	210	

Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr
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His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly
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Glu Cys
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<210> 43

<211> 762

<212> DNA

<213> Artificial Sequence

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<221> Artificial Sequence

<222> 1-762

<223> recombinant immunoglobulin

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tcattcagta gccactacat gcaactgggtg aagcagagcc atggaaagag 200
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accagaaatt caagggcaag gccacattga ctgtagacac atcttccagc 300
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<212> PRT

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<221> Artificial Sequence

<222> 1-253

<223> recombinant immunoglobulin

<400> 44

Met	Lys	Lys	Asn	Ile	Ala	Phe	Leu	Leu	Ala	Ser	Met	Phe	Val	Phe
1				5					10					15
Ser	Ile	Ala	Thr	Asn	Ala	Tyr	Ala	Glu	Ile	Gln	Leu	Gln	Gln	Ser
			20						25					30
Gly	Pro	Glu	Leu	Met	Lys	Pro	Gly	Ala	Ser	Val	Lys	Ile	Ser	Cys
			35						40					45
Lys	Ala	Ser	Gly	Tyr	Ser	Phe	Ser	Ser	His	Tyr	Met	His	Trp	Val
			50						55					60
Lys	Gln	Ser	His	Gly	Lys	Ser	Leu	Glu	Trp	Ile	Gly	Tyr	Ile	Asp
			65						70					75
Pro	Ser	Asn	Gly	Glu	Thr	Thr	Tyr	Asn	Gln	Lys	Phe	Lys	Gly	Lys
			80						85					90
Ala	Thr	Leu	Thr	Val	Asp	Thr	Ser	Ser	Ser	Thr	Ala	Asn	Val	His
			95						100					105
Leu	Ser	Ser	Leu	Thr	Ser	Asp	Asp	Ser	Ala	Val	Tyr	Phe	Cys	Ala
			110						115					120
Arg	Gly	Asp	Tyr	Arg	Tyr	Asn	Gly	Asp	Trp	Phe	Phe	Asp	Val	Trp
			125						130					135
Gly	Ala	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly
			140						145					150
Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly
			155						160					165
Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu
			170						175					180
Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
			185						190					195
His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu
			200						205					210
Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr
			215						220					225
Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp
			230						235					240
Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr		
			245						250			253		

<210> 45

<211> 114

<212> PRT

<213> Mus musculus

<400> 45

Asp Ile Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu

1	5	10	15
Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val	20	25	30
His Gly Ile Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro	35	40	45
Gly Gln Ser Pro Lys Leu Leu Ile Tyr Tyr Lys Val Ser Asn Arg	50	55	60
Phe Ser Gly Val Pro Asp Arg Phe Ser Asp Ser Gly Ser Gly Thr	65	70	75
Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Leu Gly	80	85	90
Leu Tyr Phe Cys Ser Gln Ser Thr His Val Pro Leu Thr Phe Gly	95	100	105
Ala Gly Thr Lys Leu Glu Leu Lys Arg	110	114	

<210> 46
 <211> 114
 <212> PRT
 <213> Artificial Sequence

 <220>
 <221> Artificial Sequence
 <222> 1-114
 <223> recombinant immunoglobulin

<400> 46
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
1 5 10 15
Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser Leu Val
20 25 30
His Gly Ile Gly Asn Thr Tyr Leu His Trp Tyr Gln Gln Lys Pro
35 40 45
Gly Lys Ala Pro Lys Leu Leu Ile Tyr Tyr Lys Val Ser Asn Arg
50 55 60
Phe Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr
65 70 75
Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala
80 85 90
Thr Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Leu Thr Phe Gly
95 100 105
Gln Gly Thr Lys Val Glu Ile Lys Arg
110 114

<210> 47
 <211> 109
 <212> PRT

<213> Homo sapiens

<400> 47

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
1 5 10 15

Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Lys Thr Ile Ser
20 25 30

Lys Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
35 40 45

Leu Leu Ile Tyr Tyr Ser Gly Ser Thr Leu Glu Ser Gly Val Pro
50 55 60

Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
65 70 75

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln
80 85 90

Gln His Asn Glu Tyr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val
95 100 105

Glu Ile Lys Arg
109

<210> 48

<211> 117

<212> PRT

<213> Mus Musculus

<400> 48

Glu Ile Gln Leu Gln Gln Ser Gly Pro Glu Leu Met Lys Pro Gly
1 5 10 15

Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe Ser
20 25 30

Ser His Tyr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
35 40 45

Glu Trp Ile Gly Tyr Ile Asp Pro Ser Asn Gly Glu Thr Thr Tyr
50 55 60

Asn Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Val Asp Thr Ser
65 70 75

Ser Ser Thr Ala Asn Val His Leu Ser Ser Leu Thr Ser Asp Asp
80 85 90

Ser Ala Val Tyr Phe Cys Ala Ala Arg Gly Asp Tyr Arg Tyr Asn
95 100 105

Gly Asp Trp Phe Phe Asp Val Trp Gly Ala Gly Thr
110 115 117

<210> 49

<211> 117

<212> PRT

<213> Artificial Sequence

<220>
<221> Artificial Sequence
<222> 1-117
<223> recombinant immunoglobulin

<400> 49

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	
1				5					10					15	
Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Ser	
				20					25					30	
Ser	His	Tyr	Met	His	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	
				35					40					45	
Glu	Trp	Val	Gly	Tyr	Ile	Asp	Pro	Ser	Asn	Gly	Glu	Thr	Thr	Tyr	
				50					55					60	
Asn	Gln	Lys	Phe	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	
				65					70					75	
Lys	Asn	Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	
				80					85					90	
Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Ala	Arg	Gly	Asp	Tyr	Arg	Tyr	Asn	
				95					100					105	
Gly	Asp	Trp	Phe	Phe	Asp	Val	Trp	Gly	Gln	Gly	Thr				
				110					115		117				

<210> 50
<211> 116
<212> PRT
<213> Homo sapiens

<400> 50

Glu	Val	Gln	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	
1				5					10					15	
Gly	Ser	Leu	Arg	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Ser	Phe	Thr	
				20					25					30	
Gly	His	Trp	Met	Asn	Trp	Val	Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	
				35					40					45	
Glu	Trp	Val	Gly	Met	Ile	His	Pro	Ser	Asp	Ser	Glu	Thr	Arg	Tyr	
				50					55					60	
Ala	Asp	Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asn	Ser	
				65					70					75	
Lys	Asn	Thr	Leu	Tyr	Leu	Gln	Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	
				80					85					90	
Thr	Ala	Val	Tyr	Tyr	Cys	Ala	Ala	Arg	Gly	Ile	Tyr	Phe	Tyr	Gly	
				95					100					105	
Thr	Thr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr					
				110					115	116					

<210> 51
<211> 242
<212> PRT
<213> Artificial Sequence

<220>
<221> Artificial Sequence
<222> 1-242
<223> recombinant immunoglobulin

<400> 51
Met Lys Lys Asn Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe
1 5 10 15
Ser Ile Ala Thr Asn Ala Tyr Ala Asp Ile Gln Met Thr Gln Ser
20 25 30
Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr
35 40 45
Cys Arg Ser Ser Gln Ser Leu Val His Gly Ile Gly Asn Thr Tyr
50 55 60
Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu
65 70 75
Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Ser Arg Phe
80 85 90
Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
95 100 105
Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ser Gln Ser Thr
110 115 120
His Val Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
125 130 135
Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
140 145 150
Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn
155 160 165
Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn
170 175 180
Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
185 190 195
Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser
200 205 210
Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr
215 220 225
His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly
230 235 240
Glu Cys
242

<210> 52
<211> 253
<212> PRT
<213> Artificial Sequence

<220>
<221> Artificial Sequence
<222> 1-253
<223> recombinant immunoglobulin

<400> 52
Met Lys Lys Asn Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe
1 5 10 15
Ser Ile Ala Thr Asn Ala Tyr Ala Glu Val Gln Leu Val Gln Ser
20 25 30
Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys
35 40 45
Ala Ala Ser Gly Tyr Ser Phe Ser Ser His Tyr Met His Trp Val
50 55 60
Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Tyr Ile Asp
65 70 75
Pro Ser Asn Gly Glu Thr Thr Tyr Asn Gln Lys Phe Lys Gly Arg
80 85 90
Phe Thr Leu Ser Arg Asp Asn Ser Lys Asn Thr Ala Tyr Leu Gln
95 100 105
Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala
110 115 120
Arg Gly Asp Tyr Arg Tyr Asn Gly Asp Trp Phe Phe Asp Val Trp
125 130 135
Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
140 145 150
Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
155 160 165
Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
170 175 180
Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
185 190 195
His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu
200 205 210
Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
215 220 225
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp
230 235 240
Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr

245

250

253

<210> 53
 <211> 159
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> Artificial Sequence
 <222> 1-159
 <223> recombinant phage protein

<400> 53
 Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe Asp Tyr Glu Lys Met
 1 5 10 15
 Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp Glu Asn
 20 25 30
 Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala Thr
 35 40 45
 Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly
 50 55 60
 Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Ser
 65 70 75
 Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu
 80 85 90
 Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val
 95 100 105
 Glu Cys Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe
 110 115 120
 Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala
 125 130 135
 Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe
 140 145 150
 Ala Asn Ile Leu Arg Asn Lys Glu Ser
 155 159

<210> 54
 <211> 780
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> Artificial Sequence
 <222> 1-780
 <223> recombinant immunoglobulin

<400> 54
 atgaaaaaga atatcgatt tcttcttgca tctatgttcg ttttttctat 50
 tgctacaaac gcatacgtg atatccagat gaccagtc ccgagctccc 100

tgtccgcctc tgtgggcat agggtcacca tcacctgcag gtcaagtcaa 150
 agcttagtac atggtatagg taacacgtat ttactctggt atcaacagaa 200
 accaggaaaa gctccgaaac tactgattta caaagtatcc aatcgattct 250
 ctggagtccc ttctcgcttc tctggatccg gttctgggac ggatttcact 300
 ctgaccatca gcagtctgca gccagaagac ttcgcaactt attactgttc 350
 acagagtact catgtcccg ctcagtttgg acaggggtacc aaggtggaga 400
 tcaaacgaac tgtggctgca ccatctgtct tcatcttccc gccatctgat 450
 gagcagttga aatctggaac tgcttctgtt gtgtgcctgc tgaataactt 500
 ctatcccaga gaggccaaag tacagtggaa ggtggataac gccctccaat 550
 cgggtaactc ccaggagagt gtcacagagc aggacagcaa ggacagcacc 600
 tacagcctca gcagcaccct gacgctgagc aaagcagact acgagaaaca 650
 caaagtctac gcctgcgaag tcacccatca gggcctgagc tcgcccgtca 700
 caaagagctt caacagggga gagtggttaag ctgacacctc acgccggacg 750
 catcgtggcc ctagtacgca actagtcgta 780

<210> 55

<211> 253

<212> PRT

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-253

<223> recombinant immunoglobulin

<400> 55

Met	Lys	Lys	Asn	Ile	Ala	Phe	Leu	Leu	Ala	Ser	Met	Phe	Val	Phe
1				5					10					15

Ser	Ile	Ala	Thr	Asn	Ala	Tyr	Ala	Glu	Val	Gln	Leu	Val	Glu	Ser
				20					25					30

Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys
			35						40					45

Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Ser	Ser	His	Tyr	Met	His	Trp	Val
			50						55					60

Lys	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	Gly	Tyr	Ile	Asp
			65						70					75

Pro	Ser	Asn	Gly	Glu	Thr	Thr	Tyr	Asn	Gln	Lys	Phe	Lys	Gly	Arg
			80						85					90

Phe	Thr	Leu	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Ala	Tyr	Leu	Gln
			95						100					105

Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Ala
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

	110	115	120
Arg Gly Asp Tyr	Arg Tyr Asn Gly Asp	Trp Phe Phe Asp Val	Trp
	125	130	135
Gly Gln Gly Thr	Leu Val Thr Val Ser	Ser Ala Ser Thr Lys	Gly
	140	145	150
Pro Ser Val Phe	Pro Leu Ala Pro Ser	Ser Lys Ser Thr Ser	Gly
	155	160	165
Gly Thr Ala Ala	Leu Gly Cys Leu Val	Lys Asp Tyr Phe Pro	Glu
	170	175	180
Pro Val Thr Val	Ser Trp Asn Ser Gly	Ala Leu Thr Ser Gly	Val
	185	190	195
His Thr Phe Pro	Ala Val Leu Gln Ser	Ser Gly Leu Tyr Ser	Leu
	200	205	210
Ser Ser Val Val	Thr Val Pro Ser Ser	Ser Leu Gly Thr Gln	Thr
	215	220	225
Tyr Ile Cys Asn	Val Asn His Lys Pro	Ser Asn Thr Lys Val	Asp
	230	235	240
Lys Lys Val Glu	Pro Lys Ser Cys Asp	Lys Thr His Thr	
	245	250	253

<210> 56

<211> 242

<212> PRT

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-242

<223> recombinant immunoglobulin

<400> 56

Met	Lys	Lys	Asn	Ile	Ala	Phe	Leu	Leu	Ala	Ser	Met	Phe	Val	Phe
1				5					10					15

Ser	Ile	Ala	Thr	Asn	Ala	Tyr	Ala	Asp	Ile	Gln	Met	Thr	Gln	Ser
				20					25					30

Pro	Ser	Ser	Leu	Ser	Ala	Ser	Val	Gly	Asp	Arg	Val	Thr	Ile	Thr
				35					40					45

Cys	Arg	Ser	Ser	Gln	Ser	Leu	Val	His	Gly	Ile	Gly	Ala	Thr	Tyr
				50					55					60

Leu	His	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys	Leu	Leu
				65					70					75

Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Ser	Arg	Phe
				80					85					90

Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser
				95					100					105

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ser Gln Ser Thr
110 115 120

His Val Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
125 130 135

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
140 145 150

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn
155 160 165

Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn
170 175 180

Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
185 190 195

Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser
200 205 210

Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr
215 220 225

His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly
230 235 240

Glu Cys
242

<210> 57

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-45

<223> recombinant leucine zipper peptide

<400> 57

Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Arg Met Lys
1 5 10 15

Gln Leu Glu Asp Lys Val Glu Glu Leu Leu Ser Lys Asn Tyr His
20 25 30

Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Leu Val Gly Glu Arg
35 40 45

<210> 58

<211> 780

<212> DNA

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-780

<223> recombinant immunoglobulin

<400> 58

atgaaaaaga atatcgatt tcttcttgca tctatgttcg ttttttctat 50
 tgctacaaac gcatacgctg atatccagat gacccagtcc ccgagctccc 100
 tgtccgcctc tgtgggcgat agggtcacca tcacctgcag gtcaagtcaa 150
 agcttagtac atggtatagg tgctacgtat ttacactggg atcaacagaa 200
 accaggaaaa gctccgaaac tactgattta caaagtatcc aatcgattct 250
 ctggagtccc ttctcgcttc tctggatccg gttctgggac ggatttcact 300
 ctgaccatca gcagtctgca gccagaagac ttcgcaactt attactgttc 350
 acagagtact catgtccgcg tcacgtttgg acagggtaacc aaggtggaga 400
 tcaaacgaac tgtggctgca ccatctgtct tcatcttccc gccatctgat 450
 gagcagttga aatctggaac tgcttctgtt gtgtgcctgc tgaataactt 500
 ctatcccaga gaggccaaag tacagtggaa ggtggataac gccctccaat 550
 cgggtaactc ccaggagagt gtcacagagc aggacagcaa ggacagcacc 600
 tacagcctca gcagcacctc gacgctgagc aaagcagact acgagaaaca 650
 caaagtctac gcctgcgaag tcacccatca gggcctgagc tcgcccgtca 700
 caaagagctt caacagggga gagtgttaag ctgacctctc acgccggacg 750
 catcgtggcc ctagtacgca actagtcgta 780

<210> 59

<211> 927

<212> DNA

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-927

<223> recombinant immunoglobulin

<400> 59

aaaagggtat ctagagggtg aggtgatttt atgaaaaaga atatcgatt 50
 tcttcttgca tctatgttcg ttttttctat tgctacaaac gcgtacgctg 100
 aggttcagct agtgcagtct ggcgggtggc tgggtgcagcc agggggctca 150
 ctccgtttgt cctgtgcagc ttctggctac tccttctcga gtcaactatat 200
 gcactgggtc cgtcaggccc cgggtaaggc cctggaatgg gttggatata 250
 ttgatccttc caatggtgaa actacgtata atcaaaagtt caagggccgt 300
 ttacttttat ctgcgacaa ctcaaaaac acagcatacc tgcagatgaa 350
 cagcctgcgt gctgaggaca ctgccgtcta ttactgtgca agaggggatt 400
 atcgtacaaa tgggtgactgg ttcttcgacg tctggggtca aggaaccctg 450

gtcaccgtct cctcggcctc caccaagggc ccatcgggtct tccccctggc 500
 accctcctcc aagagcacct ctggggggcac agcggccctg ggctgcctgg 550
 tcaaggacta cttccccgaa ccggtgacgg tgtcgtggaa ctcaggcgcc 600
 ctgaccagcg gcgtgcacac cttcccggct gtcctacagt cctcaggact 650
 ctactccctc agcagcgtgg tgaccgtgcc ctccagcagc ttggggcacc 700
 agacctacat ctgcaacgtg aatcacaagc ccagcaacac caaggtcgac 750
 aagaaagttg agcccaaadc ttgtgacaaa actcacacat gcccgccgtg 800
 cccagcacca gaactgctgg gcggccgcat gaaacagcta gaggacaagg 850
 tcgaagagct actctccaag aactaccacc tagagaatga agtggcaaga 900
 ctcaaaaagc ttgtcgggga gcgctaa 927

<210> 60

<211> 298

<212> PRT

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> 1-298

<223> recombinant immunoglobulin

<400> 60

Met	Lys	Lys	Asn	Ile	Ala	Phe	Leu	Leu	Ala	Ser	Met	Phe	Val	Phe
1				5					10					15

Ser	Ile	Ala	Thr	Asn	Ala	Tyr	Ala	Glu	Val	Gln	Leu	Val	Gln	Ser
				20					25					30

Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys
			35						40					45

Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Ser	Ser	His	Tyr	Met	His	Trp	Val
			50						55					60

Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	Gly	Tyr	Ile	Asp
			65						70					75

Pro	Ser	Asn	Gly	Glu	Thr	Thr	Tyr	Asn	Gln	Lys	Phe	Lys	Gly	Arg
			80						85					90

Phe	Thr	Leu	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Ala	Tyr	Leu	Gln
			95						100					105

Met	Asn	Ser	Leu	Arg	Ala	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	Ala
			110						115					120

Arg	Gly	Asp	Tyr	Arg	Tyr	Asn	Gly	Asp	Trp	Phe	Phe	Asp	Val	Trp
			125						130					135

Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly
			140						145					150

Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	Gly
				155					160					165
Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu
				170					175					180
Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val
				185					190					195
His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu
				200					205					210
Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr
				215					220					225
Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp
				230					235					240
Lys	Lys	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro
				245					250					255
Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Arg	Met	Lys	Gln	Leu
				260					265					270
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65 70 75

Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Ser Arg Phe
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Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser
95 100 105

Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ser Gln Ser Thr
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His Val Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
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Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
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Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn
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<211> 256

<212> PRT

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<222> 1-256

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<400> 70

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Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	Ser	Leu	Arg	Leu	Ser	Cys	
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Ala	Ala	Ser	Gly	Tyr	Ser	Phe	Ser	Ser	His	Tyr	Met	His	Trp	Val	
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Arg	Gln	Ala	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Val	Gly	Tyr	Ile	Asp	
				65					70					75	
Pro	Ser	Asn	Gly	Glu	Thr	Thr	Tyr	Asn	Gln	Lys	Phe	Lys	Gly	Arg	
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Phe	Thr	Leu	Ser	Arg	Asp	Asn	Ser	Lys	Asn	Thr	Ala	Tyr	Leu	Gln	
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Gly	Gln	Gly	Thr	Leu	Val	Thr	Val	Ser	Ser	Ala	Ser	Thr	Lys	Gly	
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Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	
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His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	
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Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	
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Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	
				230					235					240	
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<211> 452
<212> PRT
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Glu Trp Val Gly Tyr Ile Asp Pro Ser Asn Gly Glu Thr Thr Tyr
50 55 60
Asn Gln Lys Phe Lys Gly Arg Phe Thr Leu Ser Arg Asp Asn Ser
65 70 75
Lys Asn Thr Ala Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp
80 85 90
Thr Ala Val Tyr Tyr Cys Ala Arg Gly Asp Tyr Arg Tyr Asn Gly
95 100 105
Asp Trp Phe Phe Asp Val Trp Gly Gln Gly Thr Leu Val Thr Val
110 115 120
Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro
125 130 135
Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu
140 145 150
Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
155 160 165
Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
170 175 180
Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser
185 190 195
Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
200 205 210
Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys
215 220 225
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
230 235 240
Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr

	245	250	255
Leu Met Ile Ser	Arg Thr Pro Glu Val	Thr Cys Val Val Val	Asp
	260	265	270
Val Ser His Glu	Asp Pro Glu Val Lys	Phe Asn Trp Tyr Val	Asp
	275	280	285
Gly Val Glu Val	His Asn Ala Lys Thr	Lys Pro Arg Glu Glu	Gln
	290	295	300
Tyr Asn Ser Thr	Tyr Arg Val Val Ser	Val Leu Thr Val Leu	His
	305	310	315
Gln Asp Trp Leu	Asn Gly Lys Glu Tyr	Lys Cys Lys Val Ser	Asn
	320	325	330
Lys Ala Leu Pro	Ala Pro Ile Glu Lys	Thr Ile Ser Lys Ala	Lys
	335	340	345
Gly Gln Pro Arg	Glu Pro Gln Val Tyr	Thr Leu Pro Pro Ser	Arg
	350	355	360
Glu Glu Met Thr	Lys Asn Gln Val Ser	Leu Thr Cys Leu Val	Lys
	365	370	375
Gly Phe Tyr Pro	Ser Asp Ile Ala Val	Glu Trp Glu Ser Asn	Gly
	380	385	390
Gln Pro Glu Asn	Asn Tyr Lys Thr Thr	Pro Pro Val Leu Asp	Ser
	395	400	405
Asp Gly Ser Phe	Phe Leu Tyr Ser Lys	Leu Thr Val Asp Lys	Ser
	410	415	420
Arg Trp Gln Gln	Gly Asn Val Phe Ser	Cys Ser Val Met His	Glu
	425	430	435
Ala Leu His Asn	His Tyr Thr Gln Lys	Ser Leu Ser Leu Ser	Pro
	440	445	450
Gly Lys			
	452		

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Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val
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Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Gln Ser Leu Val
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His	Gly	Ile	Gly	Ala	Thr	Tyr	Leu	His	Trp	Tyr	Gln	Gln	Lys	Pro	35	40	45
Gly	Lys	Ala	Pro	Lys	Leu	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	50	55	60
Ser	Gly	Val	Pro	Ser	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	65	70	75
Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Pro	Glu	Asp	Phe	Ala	Thr	80	85	90
Tyr	Tyr	Cys	Ser	Gln	Ser	Thr	His	Val	Pro	Leu	Thr	Phe	Gly	Gln	95	100	105
Gly	Thr	Lys	Val	Glu	Ile	Lys	Arg	Thr	Val	Ala	Ala	Pro	Ser	Val	110	115	120
Phe	Ile	Phe	Pro	Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala	125	130	135
Ser	Val	Val	Cys	Leu	Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu	Ala	Lys	140	145	150
Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln	155	160	165
Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	170	175	180
Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr	Glu	Lys	His	Lys	185	190	195
Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser	Ser	Pro	Val	200	205	210
Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys							215	219	